

have encountered this plant at altitudes of 2800--3750 meters. "Lampaya" is the only vernacular name thus far recorded for it.

Montes and his associates (1974) report that the leaves are used to treat "Maladies des voies urinaires et du foie". Troncoso (1974) quotes Murillo (1889) as saying that "Les habitants lui donnent le nom de lampaya o lampayo et le regardent comme un remède universel, l'employant fréquemment et avec une confiance très grande. Selon M. Belisario Java, de Pica, l'infusion d'une once de lampayo dans un litre d'eau est un excellent sudorifique pour les refroidissements, les rhumatismes et les siphilis." She continues: "En el N. argentino, especialmente en el Quebrada de Humahuaca, se usa *L. medicinalis* Ph. como materia colorante. (De la tesis inéd. del Ing. M. Uro, 1927)."

Junell (1934) says that "Der Fruchtknotenbau wie bei den vorhergehenden Gattungen [*Nashia*, *Lantana*, *Lippia*, etc.] wie aus Fig. 66 ersichtlich, setzt sich von den beiden Plazentagefässbündeln je ein kräftiger Zweig nach oben in den Fruchtknoten fort. Die Integumenttapetum ist schwach ausgebildet. Der Embryosack ist gleichmässig dick und oben kaum erweitert. An einem Präparat habe ich ein mikropylares Haustorium mit etwa sechs, in einem Kreis nebeneinander liegenden Zellen beobachtet. Ich habe keine Gelegenheit gehabt, Früchte zu untersuchen. Duese zerfallen in zwei Steine und sind vermutlich steinfruchtartig."

Heusser (1971) cites *L. medicinalis* from Tarapacá and Antofagasta, Chile. Troncoso (1974) cites *F. Philippi* s.n. from "Colana" and Perry 6985 from Antofagasta, Chile, and *A. Castellanos* s.n. from Jujuy, Argentina, as well as *Martin 378* from an unspecified locality.

The *Cárdenas 3710* and *Troll 2946*, distributed as *L. medicinalis*, seem actually to represent *L. castellani* Mold., while *Asplund 12352* is *Acantholippia deserticola* (R. A. Phil.) Mold.

Citations: CHILE: Antofagasta: *Marticoarena*, *Matthei*, & *Quezada 404* (Z); *Pfister 8387* (S); *A. Pinto* s.n. [Est. San Pedro, 28-IX-1948] (Ac). Tarapacá: *R. A. Philippi 1283* (W--1323387), s.n. [Macbride photos 17579; Herb. Mus. Nac. Hist. Nat. Chile 54881] (Kr--photo os isotype, N--photo of type, N--photo of isotype, N--photo of isotype, W--photo of isotype, Z--photo of isotype).

NOTES ON THE GENUS *PERONEMA*

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It had been my intention to publish a formal detailed monograph of this genus, along with all other genera on this and related segregated families, but this plan now appears to be infeasible because of lack of time. It has seemed worthwhile, however, to place on record herewith the miscellaneous notes, chiefly bibliographic, assembled by my wife and myself over the past fifty

years. This is the 49th genus so treated. Full explanation of the herbarium acronyms employed herein, as in all others in this large series of papers in this journal since 1933, will be found in my "Fifth Summary of the *Verbenaceae*....." (1971), pages 795--801.

PERONEMA Jack, Malay. Misc., imp. 1, 1: 46--47. 1820.

Synonymy: *Peronema* Jacq. apud Schnitzl., Icon. Fam. Nat. Veg. 2: 137 Verbenac. [3], sphalm. 1856. *Paronema* Chowdhury, Journ. Indian Bot. Soc. 43: 335, sphalm. 1964; Mold., Résumé Suppl. 15: 21, in syn. 1967.

Bibliography: Jack, Malay. Misc., imp. 1, 1: i & 46--47. 1820; Jack, Descrip. Malay. Pl., imp. 1, 46--47. 1822; Jack in Hook., Comp. Bot. Mag. 1: 152--153. 1835; Endl., Gen. Pl. 634--635. 1838; Meisn., Pl. Vasc. Gen. 2: 198. 1840; Spach, Hist. Nat. Vég. Phan. 9: 227. 1840; D. Dietr., Syn. Pl. 3: 371 & 606. 1843; Jack, Calc. Journ. Nat. Hist. 4 (13): 41--42. 1843; Voigt, Hort. Suburb. Calc. 465. 1845; Schau. in A. DC., Prodr. 11: 626--627. 1847; Wall., Numer. List 303, no. 9075. 1849; Wight, Icon. Pl. Orient. 4 (3): 10, pl. 1460. 1849; W. Griff., Notul. 4: 177--178 & 759. 1854; W. Griff., Icon. Pl. Asiat. 4: pl. 448, fig. 3. 1854; Miq., Fl. Ned. Ind. 2: 908--909. 1856; Schnitzl., Icon. Fam. Nat. Reg. Veg. 2: 137 Verbenac. [3]. 1856; Miq., Fl. Ind. Bat. Suppl. 570--571. 1860; Bocq., Adansonia, ser. 1, 2: 90, 119, 120, 123, 131, & 154--156. 1862; Benth. in Benth. & Hook. f., Gen. Pl. 2 (2): 1132, 1136, 1158, & 1268. 1876; C. B. Clarke in Hook. f., Fl. Brit. India 4: 599. 1885; Briq. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3a): 177--179. 1894; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 473. 1894; Koord., Meded. Lands Pl. 12: [Plantkund. Woordenb.] 92 & 146. 1894; Briq. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3a): 383. 1897; Koord. & Valet., Meded. Lands Pl. Bat. 42 [Bijdr. Booms. Java 7]: 164 & 213--215. 1900; Dalla Torre & Harms, Gen. Siphonog., imp. 1, 433. 1904; King & Gamble, Journ. Asiat. Soc. Beng. 74 (2 extra): 795 & 857--858. 1908; King & Gamble, Fl. Malay Penins. 21: 795 & 857--858. 1909; Francé, Leben Pflanze 6: 513. 1913; Koord. & Valet., Atlas Baumart. Jav. pl. 280 & 281. 1914; Heyne, Nutt. Pl. Nederl. Ind., ed. 1, 4: 122--123 & xviii. 1917; H. J. Lam, Verbenac. Malay. Arch. 321--322 & 366. 1919; Ridl., Fl. Malay Penins. 2: 636. 1923; Heyne, Nutt. Pl. Nederl. Ind., ed. 2, 1324. 1925; S. Moore, Journ. Bot. Lond. 63: Suppl. 81. 1925; Wangerin, Justs Bot. Jahresber. 53 (2): 645. 1925; Janssonius, Mikr. Holz. 754. 1926; C. Coster, Ann. Jard. Bot. Buitenz. 38: 21, 24, & 27. 1928; Wangerin, Justs Bot. Jahresber. 50 (1): 237. 1930; Stapf, Ind. Lond. 5: 35. 1931; Junell, Symb. Bot. Upsal. 1 (4): 95, 97--98, & 201--202, fig. 148. 1934; Corbett, Journ. Fed. Malay St. Mus. 17: 749. 1936; Japing & Seng, Tectona 29: 529--534. 1936; Mold., Prelim. Alph. List Inv. Names 33. 1940; Mold., Suppl. List Comm. Vern. Names 7, 11, 13, & 21. 1940; Mold., Alph. List Inv. Names 34. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 60, 61, 63--65, 73, & 97. 1942; Mold., Phytologia 2: 107. 1944; Jacks. in Hook. f. Jacks., Ind. Kew., imp. 2, 2: 473. 1946; H. N. & A. L. Mold., Pl. Life 2: 22--24 & 34. 1946; Den Berger, Determ. Houts.

Mal. Fam. 73. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 139, 140, 143, 144, 146, 162, & 192. 1949; Metcalfe & Chalk, Anat. Dicot. 1035--1038 & 1041. 1950; Angely, Cat. Estat. Gen. Bot. Fan. 17: 5. 1956; Dalla Torre & Harms, Gen. Siphonog., imp. 2, 433. 1958; Iljin, Acad. Sci. Bot. Inst. Dept. Repr. Mat. Hist. Fl. Veg. USSR 3: 216. 1958; Mold., Résumé 178, 180, 188--190, 193, 220, 330, 413, & 464. 1959; Embarger in Chadefaud & Embarger, Traité Bot. 2: 828. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 473. 1960; Dalla Torre & Harms, Gen. Siphonog., imp. 3, 433. 1963; Chowdhury, Journ. Indian Bot. Soc. 43: 335, 336, & 342, pl. 1, fig. 3. 1964; J. Muller in Cranwell, Ancient Pacif. Floras 39. 1964; Backer & Bakh., Fl. Java 2: 594 & 612. 1965; F. A. Barkley, List Ord. Fam. Anthoph. 76 & 195. 1965; Chopra, Badhwar, & Ghosh, Poison. Pl. India 2: 694. 1965; Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 7, 853. 1966; Mitra, Elem. Syst. Bot. Angiosp., ed. 2 abrdg., 141. 1967; Mold., Résumé Suppl. 15: 21. 1967; Kundu & De, Bull. Bot. Surv. India 10: 406. 1968; Uphof, Dict. Econ. Pl., ed. 2, 397 & 541. 1968; Corner & Watanabe, Illustr. Guide Trop. Pl. 763. 1969; J. Hutchins., Evol. Phylog. Flow. Pl. 469 & 701. 1969; Keng, Ord. Fam. Malay. Seed Pl. 278. 1969; Rouleau, Guide Ind. Kew. 142 & 352. 1970; Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 8, 875. 1973; Mold., Fifth Summ. 1: 297, 305, 325, & 366 (1971) and 2: 593, 594, 763, & 897. 1971; Mukhopadhyay, Pollen Morph. Verb. [thesis]. 1971; Mold., Phytologia 23: 424, 429, & 500. 1972; Hegnauer, Chemotax. Pfl. 6 [Chem. Reihe 21]: 678. 1973; Thanikaimoni, Inst. Franç. Pond. Trav. Sect. Scient. Tech. 12 (2): 95 (1973) and 13: 178 & 328. 1976; Mold., Phytologia 34: 265, 270, & 508. 1976; Jack, Malay. Misc., imp. 2, 1: [i] & 46--47. 1977; Jack, Descr. Malay. Pl., imp. 2, [i] & 2: 46--47. 1977; Mound & Halsey, Whitefly World 160, 305, & 312. 1978; Mukherjee & Chanda, Trans. Bose Res. Inst. 41: 40 & 47. 1978; Mold., Phytologia 44: 221 & 510. 1979.

It is worth noting here that the date of the original publication of this genus is given as "1822" by most authors, although the erroneous dates, "1820" and "1832", also appear in the literature on the genus. Jack's original description is: "Didynamia Angiospermia. N.O. *Verberaceae*. Br. Calyx 5-partitus. Corolla tubo brevi, limbo irregulari 5-lobo, laciniis secundis. Stamina duo, exserta; rudimenta duorum sterilium. Stigma refractum. Fructus siccus, 4-partibilis, 4-spermus. Arbor, foliis pinnatis petiolo alato, panicula terminali, opposite corymbosa.....The genus is related to *Vitex* but is abundantly distinct therefrom."

Bentham (1876) amplified this description to: "Calyx campanulatus, breviter 5-fidus, fructifer immutatus. Corolla tubus brevis; limbus sub-2-labiatus, 5-fidus, lobis parum inaequalibus, 2 posticis exterioribus, antico caeteris paullo longiore, concavo. Stamina 2, antica, fauci affixa, subexserta; antherae parvae, late ovatae, loculis subparalleliis distinctis. Ovarium 4-loculare, loculis 1-ovulatis; stylus apice incurvus, acutus, integer; ovula sub apice lateraliter affixa. Capsula parva, subglobosa, calyce longior, 4-valvis; valvae a basi deciduae, crustaceae cum membrana externa villosula, placentae in columnam centralem 4-alatam coher-

entes liberantes v. demum inter se solutas auferentes. Semina sub apice affixa, pendula, exalbuminosa. - Arbor procera, ramulis foliis inflorescentibusque tomento minuto subcanescentibus. Folia opposita (2-pedalia) imparipinnata, foliolis suboppositis conjugis lanceolatis integerrimis, rhachi apice saepe anguste alata. Cymae laxae, in paniculas 3-chotomas floribundas in axillis superioribus pedunculatas dispositae. Flores minimi. Bractee minutae, setaceae."

Clarke (1885) describes the genus as "A lofty tree; branchlets grey-tomentose. Leaves opposite, unequally pinnate; leaflets several pair, entire. Panicles in the upper axils large, compound; bracts small, flowers very small. Calyx shortly 5-fid, not accrescent. Corolla tube cylindrical; limb 2-lipped, 5-lobed. Stamens 2; anthers subexserted, ovate; cells parallel, subseparate. Ovary 4-celled, 4-ovuled; style filiform, subentire. Capsule small, globose, longer than the calyx, 4-valved; valves quarter-spheres, margins inflexed holding the seeds. Seeds pendulous."

Miquel (1856) describe it as "A tree, medium or rather small; branches grey-tomentose. Leaves imparipinnate; leaflets 7 to 9 pairs. Inflorescence of large corymbose panicles terminal of very numerous, small white flowers. Calyx campanulate, 5-lobed. Corolla short, 2-lipped, 5-lobed, midlobe of flower-lip largest. Stamens 2, exsert. Ovary 4-celled; cells 1-ovuled. Capsule small, globose, of 4 crustaceous valves separating from base. Seeds small. Species 1, Malay Peninsula, Borneo, Sumatra, Java."

Briquet (1894) characterizes the genus as follows: "Kelch glockig, kurz 5spaltig, zur Zeit der Reife unverändert. Blkr. mit kurzer Röhre; Saum schwach 2lappig, 5spaltig, mit schwach ungleichen Lappen, die 2 hinteren nach aussen gelegen, der vorderer grösser als die übrigen, concav. Stb. 2, die vorderen in Blumenkronslunde inseriert, \pm exsert; A. klein, breit eiförmig, mit \pm parallelen Thecae. Frkn. 4fächerig, mit je 1 fast gipfelständigen, hangenden, Sa. enthaltenden Fächern; Gr. am Gipfel gebogen, spitz, ungeteilt. Kapsel klein, halbkugelig, länger als der Kelch, 4klappig; Klappen von der Basis abfällig, etwas krustig, die 4 zu einer 4flügeligen axilen Säule verwachsenen Placenten frei machend oder losreissend. S. fast gipfelständig. - Hoher Baum, mit dünnen Filze auf Zweigen und B. bedeckt. B. gegenständig, unpaarig-gefiedert, mit fast gegenständigen, zahlreichen, lanzettlichen, ganzrandigen B. Cymes locker in axillären, reichblütigen Rispen. Bl. und Bracteen sehr klein."

Lam (1919) also describes the genus in practically identical manner: "Small trees; branchlets, inflorescences and petioles minutely grey-tomentose; leaves large, opposite, imparipinnately composed; inflorescences terminal, large, composed of cymes; bracts subulate; flowers small; calyx 5-toothed, somewhat 2-lipped, unaltered in fruit; corolla with short tube; limb oblique, 2-lipped, 5-lobed, upper lip with 2 small, lower lip with 3 larger lobes, the middle one larger; stamens 2, exserted, inserted in the ventral and basal part of the corolla-tube; style slender, with subulate stigma, sometimes bifid; ovary 4-celled, cells 1-ovuled; fruit a 4-valvate capsule; placenta central, winged, seeds pendulous, without

albumen. Distribution: Malay Peninsula! and western part of Archipelago!"

Junell (1934) notes that "Bei *Peronema* zerfällt auch tatsächlich die Frucht ziemlich leicht". He places the genus in Subtribe *Viticeae* (instead of *Caryopteridoideae*) with *Hymenopyramis* Wall., saying "Die Einreihung dieser beiden Gattungen in *Viticeae* begründe ich hauptsächlich mit der Übereinstimmung hinsichtlich des Fruchtknotenbaus. Die Plazenten sind jedoch im obersten Teil des Fruchtknotens nicht verwachsen. Möglicherweise wären die beiden Gattungen, und zwar vorsugsweise *Peronema*, mit Rücksicht auf den Fruchtknotenbau besser in *Callicarpeae* unterzubringen. Der Umstand, dass die Fruchtwand trocken ist, bildet meines Erachtens kein direktes Hindernis für die Platzierung der Gattungen in einer dieser beiden Subtribus, insbesondere wenn man berücksichtigt, dass die Fruchtwand immerhin noch Steinzellen enthält. -- *Peronema* besitzt auch Ähnlichkeit mit einigen Gattungen, die den Übergang zwischen *Clerodendreae* und *Ajugeae* bilden."

Backer and Bakhuizen (1965) have lately amplified the generic description as follows: "Flowers small, in an erect, large, densely short-hairy, terminal panicle; bracts small; calyx 5-fid almost halfway down, slightly enlarged under the fruit; corolla bilabiate; tube short, widened in the upper half; upper lip short, bifid, lower one longer, 3-fid, median lobe by far the largest; stamens 2 (anterior ones), inserted at the base of the widened part of the corolla-tube, far exserted between the posterior corolla-segments, decurved; ovary 4-celled; cells 1-ovuled; style far exserted, its tip subulate; drupe small, globose, dry, 4-cocccous. Branches densely pubescent; leaves opposite, imparipinnate; rachis winged; leaflets opposite or alternate, 3--11-jugate plus terminal leaflet, sessile or shortly stalked, entire or occasionally serrate, accrescent toward the apex of the leaf; lateral nerves numerous, parallel. Tree."

It is perhaps worthy of note here that the Endlicher (1838) reference cited in the bibliography (above) is often cited as "1836--1856", the titlepage date, but the pages involved with the genus under discussion were actually issued in 1838. Similarly, the Schnitzlein (1856) reference is often cited by the titlepage date of "1843--1870", but, again, the page involved here was actually issued in 1856. Moore's paper (1925) is sometimes cited as authored by "Rendle" or "S. Moore in Rendle", but according to the table of contents Moore was the sole author. The plate sometimes cited to Griffith's *Notul. Pl. Asiat.* actually was issued in his *Icon. Pl. Asiat.* of the same year (1854).

Peronema canescens Jack is the type and only known species in the genus.

PERONEMA CANESCENS Jack, Malay. Misc., imp. 1, 1: 46--47. 1820.

Synonymy: *Peronema heterophyllum* Miq., Fl. Ind. Bat. Suppl. 570--571. 1860. *Peronema canescens* Vahl ex Mold., Résumé 330, in syn. 1959. *Peronema canescens* Jacq. ex Uphof, Dict. Econ. Pl., ed. 2, 397, sphalm. 1968

Bibliography: see under the genus as a whole.

Illustrations: Wight, Icon. Pl. Ind. Orient. 4 (3): pl. 1460. 1849; W. Griff., Icon. Pl. Asiat. 4: pl. 448, fig. 3. 1854; Francé, *Leben Pflanze* 6: 513. 1913; Koord. & Valet., *Atlas Baumart. Jav.* pl. 280 & 281. 1914; Junell, *Symb. Bot. Upsal.* 4: 95, fig. 148. 1934; Chowdhury, *Journ. Indian Bot. Soc.* 43: opp. 342, fig. 3. 1964; Corner & Watanabe, *Illustr. Guide Trop. Pl.* 763. 1969.

Jack's original (1820) description of this species is as follows: "A large tree, native of Sumatra. Trunk straight, but little branched. Leaves opposite, ovate, nearly two feet long, with 7--9 pair of leaflets which are alternate or subopposite, lanceolate, attenuated to both ends, acute, somewhat recurved, entire, smooth above, canescent beneath, veins reticulate on the under surface; 8--9 inches long. Petioles winged, finely and delicately tomentose, wings decurrent from the insertion of the leaflets. Stipules none. The branches are crowned by a vast terminal oppositely corymbose panicle, of which the ultimate divisions are dichotomous with a flower in the bifurcations; the whole is finely tomentose and hoary. Bracts small, acute. Flowers inconspicuous, whitish. Calyx five-parted, segments acute, erect. Corolla not much longer than the calyx, limb expanding, irregular, five-lobed, segments secund, the two upper ones diverging, the lowermost considerably longer than the rest. Stamina two, reflexed backwards between the upper segments of the corolla; filaments subulate, thickened towards the base; anthers long. Rudiments of two abortive stamina. Ovary four celled, ovule erect. Style rather longer than the stamina. Stigma simple, refracted. Fruit seated on the calyx, villous, dry, separating into four portions, each of which contains a single seed. Obs. This is a valuable timber tree, the wood being hard and tough, well suited for carriage shafts, which require to combine strength and elasticity with lightness. When long buried in the earth, it is said to become petrified. The genus is related to *Vitex*, but is abundantly distinct therefrom."

More recent writers and collectors describe the plant as a shrub or small to large tree, 12--30 m. tall, the trunk slender and strict, the bole to 9 m. high, 38--70 cm. in diameter at breast height, the wood durable, tough, darkening when cut, the bark white or gray to pale-brown or "biscuit-color", rather smooth, bitter, very strongly laminated or peeling, longitudinally fissured, the sap not milky, the branchlets densely grayish- or brownish-tomentose or short-hairy, the leaves imparipinnately compound, decussate-opposite, 15--60 cm. long, 10--15 cm. wide, rich-purple when young, hoary-white beneath, the rachis often winged throughout the space between the leaflets, decurrent or "not truly decurrent", the petioles 3--18 cm. long, flat above, conspicuously alate, lightly or densely grayish- or brownish-tomentose, the leaflets 7--9 alternate or subopposite to opposite pairs, sessile, herbaceous or rather thin-chartaceous, lanceolate or oblong-lanceolate, apically acutely acuminate to attenuate or caudate, basally acute to attenuate or cuneate, serrate (upper) or entire (lower), the smallest ones basal, 2.5--15 cm. long, 1--3.5 cm. wide, and acute at both ends, the upper larger ones 10--35 cm. long and 3.5--7.5 cm. wide,

densely gray- or whitish-pubescent or tomentose and reticulate-venose beneath, often concave, glabrous above, often subrecurved, the secondary venation comprising 20--30 pairs, the inflorescence terminal or thyrsoid, large, resembling that of *Tectona grandis* L. f., 25--35 cm. long, 18--40 cm. wide, densely grayish- or brownish-puberulent or lightly pubescent-tomentose throughout, with a pale-green or brown aspect when fresh, made up of opposite trichotomous cymes in secondary corymbs, the axes light-yellowish, the first branches decussate-opposite; bractlets 1 mm. long, narrow, apically acute, pubescent; flowers minute, inconspicuous, white or greenish-white, 2--3 mm. long, not fragrant; calyx campanulate, green or greenish, about 1 mm. long, densely glandular-hairy, deeply toothed or 5-parted to almost the middle, unchanged in fruit, the lobes patulous or deltoid, reflexed in fruit; corolla 3--4 mm. long, whitish-glandular-pubescent, the tube subinfundibular, somewhat longer than the calyx, often glabrate, the limb oblique, 2-lipped, the 4 upper lobes subequaling the calyx-lobes, the 5th anterior lobe twice as long, erect, 2-lobulate, quite petaloid; fertile stamens 2 (the lower pair), exerted, recurved, the upper 2 reduced to rudimentary filaments; lower filaments stout, subulate, pale- or yellow-green, introflexed in aestivation; anthers large, reniform-oblong, sordid-yellow, 2-locular, attached in the sinus between the thecae, longitudinally dehiscent; style filiform, pale-green, basally pilose; stigma subsimple, subulate, curved; ovary cordate-rotund, apically densely pilose, 2-locular; ovules enclosed in partial cells from a recurved placenta, pendulous; capsule about 3 mm. long and 2 mm. wide, hirsute.

The corollas are said to have been "white" on *Balgooy 2483*, "whitish" on *Put 251*, and "yellow-green, lip white" on *Maxwell 75-905*. On *Jacobs XI-K-25* they are described as "2 upper petals green with a whitish base enveloping the base of the stamens, 3 lower petals white".

Griffith (1854) notes that "As the ovarium increases the calyx is forced to spread out, it is now pubescent, in all the exposed part marked by 4 lines converging to the cicatrix of the style and simulating well a Boragineous fruit. The placentas have become fleshy, and the proper cells of the ovula, quite complete (except adhesion). This is evidently the *Peronema canescens* of Jack, who describes the ovary as 4-celled, and the ovules as erect, in which case a greater degree of affinity with *Tectona* would be manifested; he also describes the wing of the petiole as decurrent, *i.e.* derived from the leaflets. The inflorescence and aspect of the young fruit, is exactly that of *Tectona*, so is the appearance of the under surface of the leaves, although these perhaps are not siliceous. It osculates directly between the *Vitex* section and *Tectona* do." He says that the calyx is "demum immulatis", but this is an obvious error for "immutatis", just as his "osculates" is obviously an error for "oscillates".

Junell (1934) affirms that "Im oberen Teil des Fruchtknotens sind die Plazenten frei. Unterhalb der Samenanlagenfusspunkte verwachsen die Plazenten. Die Fruchtblattränder bleiben jedoch

frei. Die Fruchtblattmitte ist nicht verdickt. Die Samenanlagen sind oberhalb der Mitte inseriert. Der oberer Teil des Embryosacks ist etwas erweitert. Die Fruchtknotenwand ist sehr dick, und im Fruchtstadium sind die inneren Schichten stark verhärtet; es ist daher schwierig, Mikrotomschnitte durch die Frucht zu erhalten. Die kugelige Frucht zerfällt zuerst an der Grenze zwischen den Fruchtblättern, und die Hälften teilen sich dann an der Medianlinie des Gynäceums entlang."

Recent collectors have found this species growing in open country, swampy river edges, evergreen forests and jungles on foothills, and damp ground along roadsides, at altitudes of 50--900 m., flowering in February, April, May, August, and September, in fruit in May, August, and October. Corner and Watanabe (1969) report the species as medicinal and assert that it is also used as a hedge plant. In fact, the *Stone & Anderson 8733*, cited below from Johore, may well have come from a cultivated plant. Stone reports it common in Pahang, while Balgooy reports it common in more or less open places in forests. *Burger 1048 & 2207* represent seedlings, the former very young ones. Jacobs refers to it as a "tree enveloped in a cloud of flowers" when in full anthesis, but most authors refer to the flowers as quite inconspicuous per se. The bark is said to be employed medicinally in the treatment of fevers. Corbett (1936) affirms that *Peronema canescens*, as well as *Cinnamomum* sp., serve as host to the whitefly, *Dialeuropora decempuncta* (Quaint. & Bak.) Takahashi in Sri Lanka.

Uphof (1968) affirms that the wood of this "Malayan Arch[ipel-ago]" tree resembles that of "djati" [*Tectona grandis* L. f.] though lighter in color and is "of much demand in Sumatra for the construction of houses and bridges; a decoction of the leaves is used as a mouthwash for toothache". Backer and Bakhuiszen (1965) assert that the Javan population as "Possibly introduced from Sumatra, as may be concluded from the popular names 'djati sabrang' and 'ki sabrang' (i.e., tree of beyond the sea)."

Heyne (1917) says of the species: "Boom, tot 22 M. hoog en 60 cM. dik, in 1892 volgens K. & V.....op Java wildgroeïend alleen aangetroffen nabij Menes in West-Bantam, thans in Bantam en het westelijk deel van Batavia reeds tamelijk algemeen en zich derhalve vrij snel oostwaarts verbreïdende. In Midden-Java is hij herhaaldelijk aangeplant gevonden, zoowel voor pagers als om het hout. Op Sumatra is hij in de benedenlanden algemeen. Het hout wordt daar volgens K. & V. geroemd voor huisbouw en bruggen; het is licht en veerkrachtig en dient in Palembang voor den bouw van ossenkarren en dergelijke klein werk, in de Lampongs bij den huisbouw, doch liefst onder dak. Stakman.....noemt het een zeer gewilde houtsoort en vermeldt de ook in Palembang bekende eigenaardigheid, dat het in stroomend water in den tijd van 6 jaar versteent. In Bulletin No. 14 Kol. Museum, bl. 60, wordt gezegd, dat loeroeshout door zijn laag s.g. bijzonder in aanmerking komt voor kapconstructies: voor andere doeleinden zou het minder bruikbaar zijn wegens een sterke neiging om te scheuren. Ook zou het worden aangetast door witte mieren en in den grond snel ver-

rotten. Een aktreksel van de bladeren wordt in Z. O. Borneo ge- bezigd als mindspoeling tegen tandpijn; in Palembang kent men aan een afkooksel koortswerende eigenschappen toe."

Vernacular names reported for this plant are "djati sabrang", "false elder", "ki sabrang", "kisabrang", "loeroesi", "mĕlajoe", "noengkĕ", "sekai", "sekay", "soehai", "soekai temor hiram", "soengkai", "soengkaii", "soengkay", "soengkĕ", "soĕngkĕ", "soengkei", "soengke-melajoe", "soĕngkie", "song krae longha", "soongkai", "sungkai", and "tjisabrang".

Wallich, Numer. List 303, no. 9057, is sometimes cited as *Peronema*, but actually is *Panax pinnatum* Lam. (*Araliaceae*), but no. 9075, on the same page, is the number intended. Of it Wallich (1849) says "Origin uncertain".

Miquel (1856) records the species from Sumatra; Griffith (1854) from Malacca. Clarke (1885) records it from Malacca, Sumatra, Java, and Borneo, but cites only Griffith 6025 from Malacca. King and Gamble report it from Borneo. Ridley (1923) cites un- numbered collections by Foxworthy, Griffith, and Scortechini from Singapore, Pahang, Malacca, Selangor, Perak, and Penang in Malaya. Lam (1919) cites Ridley 3993 from Singapore, *Junghuhn s.n.* from Java, and Forbes 2655 and Korthals 1360 from Sumatra.

Japing and Seng (1936) aver that *Peronema canescens* makes moder- ate demand upon the soil, but does not thrive on physically bad soils. The increment is rather slow, even on good soils. The wood has moderate value. We advise against planting of this species on a large scale."

King and Gamble (1908) cite the following collections: Curtis 2427 from Penang, Ridley 2247 from Pahang, Scortechini 1160 from Perak, Griffith 6015 from Malacca, Ridley 3993 from Singapore, Forbes 2655 and Teijsmann *s.n.* from Sumatra, and Motley 870 from Borneo.

Material of *Peronema canescens* has been misidentified and dis- tributed in some herbaria as *Vitex* sp. On the other hand, the W. Y. Chun 1090 [Herb. Univ. Nanking 6469], distributed as *Peronema canescens*, actually is *Sphenodesme pentandra* Jack in the *Symphoremaceae*. Blume *s.n.* in the Leiden herbarium was annotated by someone as "Nov. gen. Melicarium".

Citations: THAILAND: Maxwell 75-905 (Ac); Put 251 [Herb. Roy. Forest. Dept. 10549] (Z). MALAYA: Johore: Ngadiman 36890 (Bz-- 22016); Stone & Anderson 8733 (Kl--10690). Kedah: Corner 31514 (Le--94124-44). Kelantan: M. R. Henderson 29553 (Bz--22017). Pa- hang: Balgooy 2483 (Ac, N); B. C. Stone 10872 (Kl--16782). Penang: C. Curtis *s.n.* (W--206352, W--206353, W--206354). Perak: Burkill 13839 (Bz--22018); Poore 389 (Kl--389), 1106 (Kl--6106). Singa- pore: T. Anderson 133 (Br, Pd); Ridley 3993 (Le--908266-1154, Le-- 908266-1174). GREATER SUNDA ISLANDS: Batu: Collector undetermined 612 H.B. (Ut--43926). Borneo: Adou 32 [L. O. B. 4010; Boschproefst. BB.13963] (Bz--21898); Atiel 62 [1420; Boschproefst. BB.14980] (Bz--21896, Bz--21897); Boschproefst. BB.13963 (Bz--21899), BB. 14980 (Le--93260-277); Jong 490/W.B. [Boschproefst. BB.8305] (Bz-- 21904); Labohm 9 (Bz--21907), 90b (Bz--21906, Le--920248-203); Posthumus 2248 (Bz--21902); Ramal *s.n.* [Oct. 1941] (Bz--21901);

Soeriodiherto 4 [4039; Boschproefst. BB.14083] (Bz--21900); Tryd 11 [Boschproefst. BB.13528] (Bz--21903. JAVA: Backer 1044 (Bz--21936), 7190 (Bz--21932, Bz--21933), 7267 (Bz--21941, Bz--21942), 10082 (Bz--21935), 26482 (Bz--21939, Bz--21940, Le--92268-355); Bakuizen 2411 (Bz--21923, Bz--21924, Le--92268-338), 3379 (Ut--24868A); Birkhoff 11 (Bz--21922); Blume s.n. (Le--908267-681, Le--908267-693, Le--908267-694, Le--908267-695); Grashoff 135 (Le--920248-202); Ham s.n. [Bagelen] (Bz--21925, Bz--21926, Bz--21927); Herb. Lugd. Bat. 90990-766 (Le); Junghuhn s.n. (Le--908266-1162, Ut--43928); Koorders 9853♂ (Bz--21943, Bz--21944, Ca--265980, Le--923150-664), 29616♂ (Br, Br, Ca--236582, Le--923150-402, Le--923150-694, Pd); Kramer 5707 (Bz--21938), 5707a (Bz--21937); Kuhl & Van Hasselt 30 (Le--908267-872); Los 6545 (Bz--21929, Le--924341-662); Pistorius s.n. [Maart 1924] (Bz--21930, Bz--21931); Uhl 6225 (Bz--21934); Van Steenis 11761 (Bz--21928); Zippelius s.n. (Le--908266-1035). SUMATRA: Abdoelmoein 6 [Boschproefst. BB.31038] (Bz--21979), 11 [Boschproefst. BB.31043] (Bz--21978), 12 [Boschproefst. BB.31044] (Bz--21977), 20 [Boschproefst. BB.8946] (Bz--21971); Arsad 20 [Boschproefst. BB.9227] (Bz--21963); Bakaroesdin 34 [Boschproefst. BB.9074] (Bz--21980); Bokhorst 24 [Boschproefst. BB.6014] (Bz--21969); Bol 20 (Bz--21962); Boschproefst. 19.T.1.F.22 (Bz--21989, Bz--21993, Bz--21994, Bz--21995, Ca--235061, Le--923353-118, Le--924320-255), BB.2850 (Bz--22011, Le--923336-536), BB.2855 (Le--924331-206), BB.6014 (Bz--21970, Le--925206-888), BB.7716 (Bz--21975, Bz--21976, Le--925250-120, N, Ut--8153), BB.7094 (Bz--21981, Bz--21982), P.879 (Bz--21985), T.B.667 (Le--925206-903), T.B.879 (Le--925206-918, Le--925206-933), T.B.1097 (Ca--265978, Le--924342-384, Ut--80453); Boschwezen s.n. [l.1.92] (Bz--22014); Buwalda 63 [Boschproefst. BB.31735] (Bz--21983); Collector undetermined s.n. (Pd); Dirksen 14 (Bz--22012, Bz--22013, Le--923138-838); Dorst 19.T.1.P.22 (Bz--21988, Bz--21990, Bz--21992); J. M. Dumas 1597 (Le--920248-219); Endert 50 (Bz--22005, Bz--22006), 134 (Bz--22004, Le--920248-199); Forbes 2655 (Le--908141-710); Grashoff 135 (Bz--21952, Bz--21954); GUSDORF 90 (Bz--21996, Bz--21997), 173 (Bz--21955, Bz--21956, Bz--21957, Le--920248-193, Le--920248-194); Hasan 5 [Boschproefst. BB.7716] (Bz--21974); Herb. Bot. Bogor. 22001 (Bz), Idenburg 27 (Bz--21959); Koorders 10478♂ (Bz--25596), 10479♂ (Bz--22008, Bz--22009, Bz--25597, Le--923150-679); Korthals 1360 (Le--908267-684, Le--908267-696), s.n. (Le--908267-682, Le--908267-685); Lörzing 4042 (Bz--22003, N), 11127 (Bz--22002); Praetorius s.n. [Ao. 1834] (Le--908267-193); Pieters 45 [Boschproefst. BB.2850] (Bz--22010); Renwarin 90 [Boschproefst. BB.2833] (Bz--22007); Rutten-Kovistra 21 (Bz--21951); Saleh 6 [Boschproefst. BB.7995] (Bz--21965); Teijsmann 612 (Bz--21998, Bz--21999, Bz--22000), s.n. (Le--908266-1172, Le--908266-1182, Le--908266-1192); Thorenaar 19-T.1.P-22 (Bz--21991, Le--322244-83); Tjing 2 [Boschproefst. BB.8328] (Bz--21972, Bz--21973), 41 [Boschproefst. BB.9188] (Bz--21964); C. F. van der Twaan s.n. [Boschproefst. T.3.P.879] (Bz--21984, Bz--21986); C. J. van der Twaan s.n. [Boschproefst. 19.T.3.P.879] (Bz--21987); Van Steenis 3387 (Bz--21960), 3981 (Bz--21961, Le--93232-161); Verduyn Lunel 33

Boschproefst. T.B.1097] (Bz--21966); *Versteegh & Merkamal* 326 [Boschproefst. BB.32250] (Bz--21958); *Wohab* 15 [Boschproefst. T. B.667] (Bz--21967, Bz--21968). CULTIVATED: Java: *Backer* s.n. [Aug. 1909] (Bz--21912, Bz--21913); *Burger* 1048 [Herb. Hort. Bot. Bogor. XI.K.25] (Bz--21908), 2207 [Herb. Hort. Bot. Bogor. XI.K. 25] (Bz--21909); *Collector undetermined* 63 (Mi, N--photo, Z--photo); *Herb. Hort. Bot. Bogor.* 21910 (Bz), 21911 (Bz), 21914 (Bz), 21915 (Bz), 21916 (Bz), 21917 (Bz), 21918 (Bz), 21919 (Bz), 21920 (Bz), 21921 (Bz), XI.K.25 (Bz--25871, Bz--25872, Bz, Bz, Bz, Bz), XI.K.25a (Bz--26595), XI.K.25 en a (Bz, Bz, Bz, N); *Jacobs* XI.K. 25 (Ba); *Koorders* 29616 (Bz--21945, Bz--21946, Bz--21947, Bz--21948, Bz--21949, Bz--21950, Le--9235-351, Le--92339-20, Le--92339-46); *Sutrisno* 30 [Herb. Hort. Bogor. XI.J.4] (N). Sumatra: *Herb. Hort. Sibolangit* 7 (Bz--26510). Sweden: *Herb. Mus. Bot. Upsal.* s.n. [hort. bot. 1932] (N, S, S). LOCALITY OF COLLECTION UNDETERMINED: *Collector undetermined* s.n. (Pd); *Herb. Acad. Rhenotrai.* s.n. (Ut--43927, Ut--43929); *Herb. Hort. Bot. Bogor.* 22015 (Bz), 25873 (Bz); *Herb. Lugd.-Bat.* 92268-370 (Le), 908267-683 (Le), 908267-697 (Le), 908267-698 (Le), 908267-699 (Le), 908267-700 (Le).

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NOTES ON THE GENUS *NEOSPARTON*

Harold N. Moldenke

Lack of time has forced me to abandon my original plans for a thorough and detailed monograph of this genus, but it has seemed advisable to place on record the miscellaneous notes, chiefly bibliographic, on this genus assembled by my wife and myself over the past fifty years. This is the 50th genus so treated by me in this series of notes in *PHYTOLOGIA*. The herbarium acronyms used hereinafter as the same as those used in all previous installments of these notes in this journal since 1933 and are fully explained in my Fifth Summary of the *Verbenaceae*.....(1971), pages 795 to 801.

NEOSPARTON Griseb., *Abhandl. Ges. Wiss. Gött.* 19: 245. 1874.

Synonymy: *Neosparyon* Griseb. ex Mold., *Alph. List Cit.* 3: 690, sphalm. 1949.

Bibliography: Hook., *Bot. Misc.* 1: 161, pl. 46. 1829; Steud., *Nom. Bot. Phan.*, ed. 2, 2: 749. 1841; D. Dietr., *Syn. Pl.* 3: 64. 1843; Schau. in A. DC., *Prodr.* 11: 545. 1847; C. Gay, *Hist. Fis. Chile Bot.* 5: 20. 1849; Buek, *Gen. Spec. Syn. Candoll.* 3: 494. 1858; Miers, *Trans. Linn. Soc. Lond. Bot.* 27: 103. 1871; Griseb., *Abhandl. K. Ges. Wiss. Gött.* 19: 245, pl. 2, fig. 6. 1874; Griseb., *Pl. Lorentz.* [Abhandl. Ges. Wiss. Gött. 19:] 197--198, pl. 2, fig. 6. 1874; Benth. in Benth. & Hook., *Gen. Pl.* 2 (2):1144.